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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/614,845   | 07/08/2003  | Tapesh Yadav         | A20 DIV1 (A14CON3)  | 9184             |
| 25235  | 7590        | 04/13/2005           | EXAMINER            |                  |
| HOGAN & HARTSON LLP<br>ONE TABOR CENTER, SUITE 1500<br>1200 SEVENTEENTH ST<br>DENVER, CO 80202 |             |                      | KALAFUT, STEPHEN J  |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 1745                |                  |

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/614,845             | YADAV ET AL.        |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Stephen J. Kalafut     | 1745                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
    a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>18 September 2003</u> . | 6) <input type="checkbox"/> Other: _____  |

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10, 14-25, 29-55, 59 and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Pirzada *et al.* (US 5,788,738).

Pirzada *et al.* disclose a process for making nanoscale powders comprising providing a feed (16) comprising solid particles (10); providing thermal energy to produce a vapor from the feed, in a thermal evaporation zone (24); nucleating nanoscale powders and thermally quenching them in an adiabatic expansion chamber (30); and collecting the powders in a filter (36). The thermal energy may be provided at over 3000 °K (examples 1-9, first paragraph of each). The process operates at a speed of at least 46 feet per second (column 6, lines 59-62). The gas carrier would also be the “fluid” of claim 16. The process also uses an extended reaction zone (26), as recited in claims 35 and 46. The expansion chamber (30) would also constitute the “additional zone”, recited in claim 46, where the thermokinetic state of the stream may be adjusted (column 6, lines 26-37) to produce supersaturation of the vapor of the powdered precursor in the gas. The gas (12) carrying the feed particles may be either reducing or oxidizing in nature (column 6, lines 1-8). The source of heat (24) may be any of the presently recited sources (column 6, lines 16-25 and column 7, lines 45-50), alone or in combination. The powdered product may be a metal, an alloy, an intermetallic, a ceramic, or a metal oxide (column 5, lines 59-66 and examples 1-9).

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The peak processing velocity may exceed 1 Mach (column 9, lines 2-11). The thermokinetic state of the process mixture and the type of gas may be adjusted and selected to affect the mean size and size distribution of the product (column 6, lines 62 through column 7, line 11). Pirzada *et al.* also disclose some devices (column 1, lines 60-65), for which their powders may be used. The present inventive entity is able to claim priority back to 30 October 1996, based on their patent no. 5,905,000. Pirzada *et al.*, to an overlapping but different inventive entity, was filed on 3 September 1996.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-13, 26-28 and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirzada *et al.*

Pirzada *et al.* do not disclose batteries, fuel cells or sensors as the device in which their nanopowders are used. However, they teach electrochemical, electronic and chemical uses (column 1, lines 60-65). The presently recited devices are within these areas, and would thus be obvious over Pirzada *et al.* Since the thermokinetic state is taught as having an effect on the size of the product powders (column 6, lines 62 through column 7, line 11), producing powders within the size range of less than 100 microns would be within the skill of the artisan.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rao *et al.* (US 5,874,134), Khan *et al.* (US 6,468,497), Phillips *et al.* (US 6,689,192) and Johnson *et al.* (US 5,665,277) disclose other methods of making nanoscale particles. Applicant's patent no. 5,905,000 is also cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sjk

  
STEPHEN KALAFUT  
PRIMARY EXAMINER  
GROUP 1760